IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously presented) A substantially purified nucleic acid molecule that encodes a maize or soybean phosphogluconate pathway enzyme or fragment thereof, wherein said maize or soybean phosphogluconate pathway enzyme is selected from the group consisting of:

(a) glucose-6-phosphate-1-dehydrogenase;

(b) D-ribulose-5-phosphate-3-epimerase; and

(c) phosphoglucoisomerase;

wherein said substantially purified nucleic acid molecule comprises a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 1, 225, 619 and complements thereof.

Claims 2-10. (Cancelled)

11. (Previously presented) An isolated nucleic acid molecule, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 1, 4, 14, 27, 225, 298, 311, 356, 569, and 619 or complements thereof.

12. (Previously presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 1 or complement thereof.

13. (Previously presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 4 or complement thereof.

14. (Cancelled)

15. (Previously presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 27 or complement thereof.

16. (Previously presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 225 or complement thereof.

17. (Previously presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 298 or complement thereof.

18. (Previously presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 311 or complement thereof.

19. (Previously presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 356 or complement thereof.

20. (Previously presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 569 or complement thereof.

21. (Previously presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 619 or complement thereof.

22. (Previously presented) A substantially purified nucleic acid molecule that encodes a maize or soybean 6-phosphogluconate dehydrogenase or fragment thereof, comprising a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 14, 27 and complements thereof.

23. (Cancelled)

24. (Previously presented) A substantially purified nucleic acid molecule that encodes a maize or soybean phosphogluconate pathway enzyme or fragment thereof, wherein said maize or soybean phosphogluconate pathway enzyme is selected from the group consisting of:

(a) glucose-6-phosphate-1-dehydrogenase;

(b) D-ribulose-5-phosphate-3-epimerase;

(c) ribose-5-phosphate isomerase; and

(c) transaldolase;

wherein said substantially purified nucleic acid molecule comprises a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 4, 298, 311, 569 and complements thereof.

Claims 25 - 26. (Cancelled).

27. (Cancelled)

28. (Previously presented) A substantially purified nucleic acid molecule that encodes a maize transketolase enzyme or fragment thereof comprising a nucleic acid sequence of SEQ ID NO: 356 or complement thereof.

29. (Cancelled)

30. (Previously presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 14 or complement thereof.

31. (Previously presented) An isolated nucleic acid molecule, wherein said nucleic acid molecule consists of a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 1, 4, 14, 27, 225, 298, 311, 356, 569, and 619 or complements thereof.

32. (New) A transformed plant having a nucleic acid molecule which comprises:

(A) an exogenous promoter region which functions in a plant cell to cause the production of a mRNA molecule;

(B) a structural nucleic acid molecule comprising a nucleic acid molecule of claim 1; and

(C) a 3' non-translated sequence that functions in said plant cell to cause termination of transcription and addition of polyadenylated ribonucleotides to a 3' end of said mRNA molecule.

33. (New) A transformed plant having a nucleic acid molecule which comprises:

(A) an exogenous promoter region which functions in a plant cell to cause the production of a mRNA molecule;

(B) a structural nucleic acid molecule comprising a nucleic acid molecule of claim 24; and

(C) a 3' non-translated sequence that functions in said plant cell to cause termination of transcription and addition of polyadenylated ribonucleotides to a 3' end of said mRNA molecule.

34. (New) A host cell comprising a recombinant nucleic acid molecule having the nucleic acid molecule of claim 1.

35. (New) The host cell of claim 34, wherein said host cell is a plant cell.

36. (New) A transgenic plant comprising the host cell of claim 34.

37. (New) A host cell comprising a recombinant nucleic acid molecule having the nucleic acid molecule of claim 24.

38. (New) The host cell of claim 37, wherein said host cell is a plant cell.

39. (New) A transgenic plant comprising the host cell of claim 37.